

## AMENDMENTS TO THE CLAIMS

The listing of claims that follows will replace all prior versions and listings of claims in the present application:

1. (original) A method of processing seismic data, the method comprising: a) identifying the value of a first parameter associated with an event in a first set of seismic data; b) obtaining, using at least one look-up table, the value of a second parameter, the second parameter being associated with a corresponding event in a second set of seismic data.
2. (original) A method as claimed in claim 1 and comprising obtaining the value of the second parameter using a first look-up table of the first parameter against at least one survey parameter and a second look-up table of the second parameter against the at least one survey parameter.
3. (original) A method as claimed in claim 2 wherein step (b) comprises: b1) obtaining, using the first look-up table, the value of the survey parameter, or a respective value of each survey parameter, corresponding to the value of the first parameter associated with the event in the first set of seismic data; and b2) obtaining, using the second look-up table, the value of the second parameter corresponding to the value of the survey parameter, or the respective values of each survey parameter, determined in step (b1).
4. (currently amended) A method as claimed in claim [[1,2 or]] 3 and further comprising defining a third look-up table of a third parameter against the at least one survey parameter.
5. (currently amended) A method as claimed in claim 4 ~~when dependent from claim 3~~ and further comprising obtaining, using the third look-up table, the value of the third parameter

corresponding to the value of the survey parameter, or the respective values of each survey parameter, determined in step (b1).

6. (currently amended) A method as claimed in claim 2[[,3, 4 or 5]], wherein the at least one survey parameter comprises offset and interface index.

7. (currently amended) A method as claimed in ~~any preceding~~ claim 1 wherein the first parameter is PP travel time.

8. (original) A method as claimed in claim 7 wherein the second parameter is PS travel time.

9. (currently amended) A method as claimed in ~~claim 7 or 8, when dependent directly or indirectly from~~ claim 4, wherein the first parameter is PP travel time and the third parameter comprises reflection depth.

10. (currently amended) A method as claimed in ~~any of claims 1 to 6~~ claim 1 wherein the first parameter of the seismic data is reflection depth.

11. (currently amended) A method as claimed in ~~any preceding~~ claim 1 and comprising displaying the obtained value of the second parameter.

12. (currently amended) A method as claimed in claim 5, ~~or in any of claims 6 to 11 when dependent directly or indirectly from claim 5,~~ and comprising displaying the obtained value of the third parameter.

13. (currently amended) A method as claimed in claim 11 ~~or 12~~ wherein the displaying step comprises highlighting a portion of a displayed seismic trace.

14. (currently amended) A method as claimed in ~~any preceding~~ claim 1 and comprising modifying the ~~look-up table, or modifying~~ at least one look-up table, on the basis of the obtained value of the second parameter.

15. (currently amended) A method as claimed in claim 5, ~~or in any of claims 6 to 14 when dependent directly or indirectly from claim 5,~~ and comprising modifying the ~~look-up table, or modifying~~ at least one look-up table, on the basis of the obtained value of the third parameter.

16. (currently amended) A method as claimed in claim 14 ~~or 15~~, wherein the step of modifying the ~~look-up table, or modifying~~ at least one look-up table, comprises modifying a model for the velocity of propagation of acoustic energy within the earth.

17. (original) A method of processing seismic data comprising: determining a first look-up table of a first parameter of seismic data against at least one survey parameter; and determining a second look-up table of a second parameter of seismic data against the at least one survey parameter; wherein the method comprises using a predetermined model for the velocity of propagation of seismic energy within the earth in the determination of the first and second look-up tables.

18. (original) An apparatus for processing seismic data, comprising: means for identifying the value of a first parameter associated with an event in a set of seismic data; and means obtaining, using first and second look-up tables, the value of a second parameter, the second parameter being associated with another event in the set of seismic data.

19. (original) An apparatus as claimed in claim 18 and comprising a programmable data processor.

20. (currently amended) ~~A storage medium containing~~ The apparatus as claimed in claim 19,  
wherein the first parameter-identifying means and the second parameter-identifying means are  
part of a program fixed in a storage medium, the program being executable by the data processor,  
~~of an apparatus as defined in claim 19.~~

21. (currently amended) ~~A~~ The method as claimed in claim 1, wherein steps (a) and (b) are part  
of a program fixed in a storage medium, containing a program for controlling the program being  
executable by a programmable data processor to carry out a method as defined in any of claims 1  
~~to 17.~~

22. (currently amended) ~~A~~ The method of claim 1, wherein steps (a) and (b) are part of a program  
for controlling a computer to carry out a method as defined in any of claims 1 to 17.